

85485

S/108/60/015/011/008/012
B019/B063

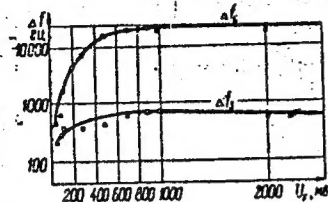


Рис. 5

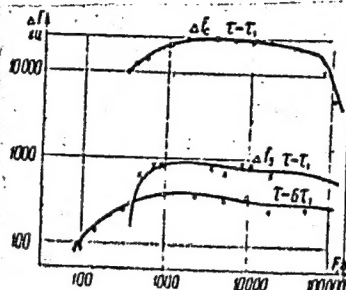


Рис. 6

Card 3/4

85485

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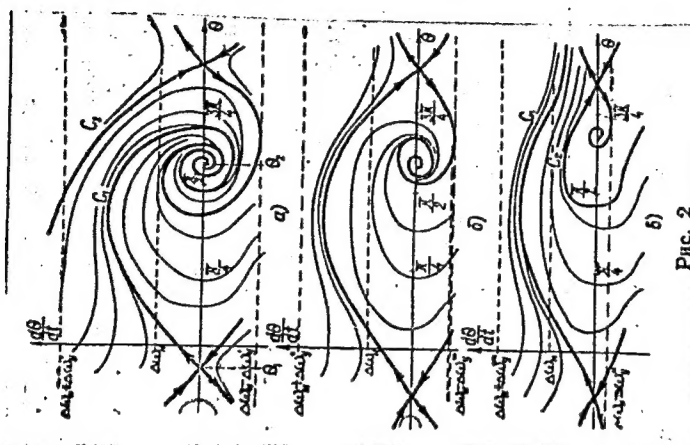


Fig. 2

Card 4/4

360001
S/108/62/017/004/001/010
D288/D301

9.3272
AUTHOR:

Tsikin, I.A., Member of the Society (see Association)

TITLE:

Interference immunity of SSB and DSB communication systems

PERIODICAL: Radiotekhnika, v. 17, no. 4, 1962, 3 - 12

TEXT: J.P. Costas' claim that a suppressed carrier DSB AM transmission with two-phase synchronous detector reception achieves essentially same signal-to-noise performance as SSB operation is submitted to a critical analysis and shown to be erroneous. Idealized synchronous detectors and low pass filters are assumed. Elementary Fourier analysis shows that the integrator of the two-phase synchronous receiver in the case of correct 90° phase relationship does not produce a larger voltage than a single sideband channel, a fact often disregarded. Autocorrelation- and cross-correlation functions for random noise are written down and yield noise power in each channel and in the output integrator. In practical cases, where the phase difference between oscillator and suppressed carrier is

Card 1/3

Interference immunity of SSB and ...

S/108/62/017/004/001/010
D288/D301

negligible, a simple expression for signal-to-noise power is obtained and shown to be half of the SSB system. Interference immunity is investigated next, interfering signals being assumed as neighboring channel signals of equal output. Formulas are quoted for minimal and normalized r.m.s. error γ , for the general case of

$\int_0^\infty F_o(\omega) d\omega = 1$ and then for Costas' proposed case $F_{\text{signal}} = F_{\text{interfere}}$.

$= \frac{\beta}{\pi} \frac{1}{\omega^2 + \beta^2}$ where $F_\beta = 0.5 F(0)$. Six cases are then considered,

being single channel synchronous DSB, twin-phase DSB and SSB, all with DSB interference, and twin-phase DSB, upper and lower SSB with SSB interference. The results are shown in diagrams, plotting γ vs. ν , where ν is the ratio of frequency separation of wanted-to-unwanted signals to β , and indicate generally the superiority of SSB reception. It is admitted that DSB operation has some advantages because of its synchronizing system's higher noise immunity and its higher transmitter efficiency. There are 7 figures. The most important English language references read as follows: J.P. Costas, Proc.

Card 2/3

Interference immunity of SSB and ...

S/108/62/017/004/001/010
D288/D301

I.R.E., v. 44, no. 12, 1956; H.W. Bode, C.E. Shannon, Proc. I.R.E.,
v. 38, no. 4, 1950.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i
elektrosvyazi imeni A.S. Popova (Scientific and Tech-
nical Society of Radio Engineering and Electrical Com-
munications imeni A.S. Popov) [Abstractor's note: Name
of the Association taken from first page of journal].

SUBMITTED: May 4, 1961

7

Card 3/3

MODEL', Z.I.; ARZUMANOV, V.N.; TSIKIN, I.A.

Two-band radio communication without carrier frequency. Radio-
tekhnika 17 no.6:42-53 Je '62. (MIRA 15:5)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva
radiotekhniki i elektrosvyazi imeni Popova.
(Radio)

L 14924-63
P1-4/Pn-4

EWT(d)/EWT(1)/BDS/EEC-2/EED-2/EEO-2 AFTTC/ASD/ESD-3

ACCESSION NR: AP3004085

S/0108/63/018/007/0003/0013

AUTHOR: Tsikin, I. A. (Member of the Society, see "Association")

TITLE: Conditions of maximum noise immunity in systems having active intervals with indefinite signal phase

SOURCE: Radiotekhnika, v. 18, no. 7, 1963, 3-13

TOPIC TAGS: noise immunity

ABSTRACT: L. M. Fink supposed (Radiotekhnika, v. 14, nos. 1 and 9, 1959) that the orthogonal, in an amplified sense, signal systems ensure maximum noise immunity in a channel with an indefinite signal phase and an additive fluctuation noise. The article offers accurate mathematical proof of the above theorem for a particular case of binary systems and Raleigh fadings. Further, some consideration is given to the optimum choice of signals in non-Raleigh-fading cases and to the noise immunity of multiposition systems. "In conclusion,

Card 1/2

L 14924-53

ACCESSION NR: AP3004085

the author expresses his deep gratitude to Prof. L. M. Fink for his interest in the work and for his comments and advice used in writing this article."
Orig. art.has: 39 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 28Dec62

DATE ACQ: 05Aug63

ENCL: 00

SUB CODE: CO

NO REF SOV: 004

OTHER: 001

Card 2/2

L 42907-66 EWT(1) JM

ACC NR: AR6015861

SOURCE CODE: UR/0275/65/000/012/A022/A022

AUTHOR: Tsalkin, B. G.

TITLE: An approximate nonlinear theory for a traveling wave tube *49*
B

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 12A152

REF SOURCE: Tr. molodykh uchenykh. Saratovsk. un-t. Vyp. fiz., Saratov, 1965, 15-22

TOPIC TAGS: traveling wave tube, nonlinear theory, approximation method

ABSTRACT: An investigation is made of an approximate nonlinear theory of a TWT, based on the solution of the known self-consistent system of Weinstein nonlinear equations, using representations of the distribution function of the amplitude of the field along the tube in the form of a series on the odd degrees of the input signal. The space charge and the distributed attenuation was not taken into account. A comparison of the efficiency of the TWT, obtained by the exact and the approximate methods with three terms of the series taken into account, showed good qualitative agreement. [Translation of abstract] Bibliography of 8 titles. A. D.

SUB CODE: 09

Card 1/1 *ldh*

UDC: 621.385.632

TSIKIN, S. P. *Ca* 15

Insecticide. S. P. Tskin and K. F. Fiel. Russ. 40,748, April 30, 1936. To a water emulsion of heavy coal-tar oils and saponified rosin is added an emulsion of residues of the rectification of benzene hydrocarbons contg. coumarin resins and aromatic sulfonic acids.

ASS. S. L. A. METALLURGICAL LITERATURE CLASSIFICATION

TSIKIN, S. P. PROCESSES AND PROPERTIES INDEX

B-I-2

Active clays as contact catalysts of polymerization processes. I. Purification of gasoline by Ural active clays. I. J. FORTOVNIK and R. P. TIKHONOV (J. Appl. Chem. Russ.; 1936, 9, 61-73).--(Certain Ural clays (activated at 1500°) are as active as is Floridin in promoting the polymerization of unsaturated components of crude gasoline in the liquid or gaseous phase. The polymers obtained from indene, styrene, cyclopentadiene (I), and polyisopentadiene (II) are utilisable in the lacquer industry. 0.06% of (I) or (II) is detected in 2 ml. of gasoline by adding 2 ml. of Ac_2O and 2 ml. of 50% H_2SO_4 when a bluish-red coloration is obtained. The polymerization of pinene by clay is inhibited by peroxides formed by exposure to air.

R. T.

TSIKIN, S. P.

21

The utilization of still residue after rectifying benzene hydrocarbons. S. P. TsiKin. *J. Applied Chem.* (U. S. S. R.) 12, 69-71 (1939).--The residue (d₄ 1.016, traces of phenols, bases and naphthalene, S. 1.5%, fraction b. below 270° 40.0 and 270-300° 45.0%) was used for the prepn. of an insecticidal emulsion for fruit orchards. The emulsion contained residue 55.0, anthracene oil (d₄ 1.110, phenols 2.2, bases 4.0, anthracene 4.45, fraction b. below 270° 60.5 and at 270-300° 66.5%, traces of naphthalene 20.0, rosin 12.0, NaOH (tech.) 1.5 and water 5.5%; d₄ 1.070. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TSIKINOVSKAYA, S.L.; DEMIDOV, Yu.N.; FEDOROVA, Ye.M.

Potentialities for reducing the cost of cast iron. Stal' 23
no.10:942-944 0 '63. (MIRA 16:11)

TSIKKEL', L.M.

Using aerophotographic data in geological mapping on a 1:50 000
scale. Sov. geol. 3 no. 9:122-127 S '60. (MIRA 13:11)

1. Vsesoyuznyy aerogeologicheskii treat.
(Aeronautics in geology)

BATURIN, V.V., glav. red.; BRYUKHANOV, V.N., red.; TSIKKEL', L.M., red.; VOSKRESENSKIY, Ye.N., red.; IL'INA, N.S., red.; LEONOV, B.N., red.; LUNGERSGAUZEN, G.F., red.; MINOKAYA, V.M., red.; MORALEV, V.I., red.; RAKOVETS, O.A., red.

[Methods for the interpretation of the materials of aerial photography in geological studies; materials] Metody deshifrirovaniia aerofotomaterialov pri geologicheskikh issledovaniyakh; materialy. Glav. red. V.V.Baturin, V.N. Briukhanov, L.M.Tsikkel'. Moskva, Izd-vo "Nedra," 1964. 150 p. (MIRA 17:7)

1. Vsesoyuznyy seminar po geologicheskomu deshifrirovaniyu pri geologicheskikh issledovaniyakh, Moscow, 1961.

TS. KKEI' L. M.

PLATE I

DATE

NOV/

507/

Abstracts of the USSR. Laboratory of Geology

Trudy, tom 81. Materialy VII Vsesoyuznogo nauchno-metodicheskogo s'ezhacheniya po aereofotogrametrii - 1 dekabrnya 1956 g. (Materials of the 7th All-Union Interdepartmental Conference on Aerial Surveying, 29 November-1 December 1956) Moscow, Gosgeolizdat, 1959. 300 p. 5,000 copies printed.

Ed. of Publishing House: V. G. Platonov. Tech. Ed.: O. A. Durova; Editorial Commission: N. G. Kuznetsov, V. P. Mironovskiy (Resp. Ed.), and N. N. Sokolov.

PURPOSE: This publication is intended for photogrammetrists, geologists, geographers, and other scientific and technical personnel concerned with aerial photography.

CONTENTS: This issue of the Transactions of the Laboratory of Aerial Survey Methods contains the second part of materials presented at the 7th All-Union Interdepartmental Conference on Aerial Surveying, which took place in Leningrad, November 29 through December 1, 1956. Articles treat problems dealing with the execution and application of aerial survey methods in geological, geomorphological, and geophysical investigations. Special attention is directed to aerial survey methods in geologically complex areas, to the use of geophysical work under difficult conditions. The techniques of joint airborne magnetic prospecting and aerial photography are described. References accompany individual articles.

TABLE OF CONTENTS:

Artyushov, L. B. [All-Union Trust for Aerial Geological Surveying]. Application of Aerial-Survey Methods to Integrated Geological Surveying of Desert and Semi-Desert Areas Near the Caspian Sea 76

Maslyayev, O. A. [Soyuznaya geologopolezovaya kontora - All-Union Prospecting Office]. Tectonics of the Northwestern Part of the Ponto-Caspian Area [Central Maychik Lowland] According to Aerogeomorphological-Survey Data 78

Savitskiy, V. G., and E. N. Kravtsovskiy [All-Union Trust for Aerial Geological Surveying]. Example of Aerogeological Interpretation Demonstrated in the Muzhaysk Basin [Depression] 92

Volin, A. V. [Laboratory of Aerial Survey Methods, Academy of Sciences USSR]. Geological Structures of Permian Formations in the Pishanayn Region [Central Kazakhstan] 101

Rubtsov, O. A. [All-Union Trust for Aerial Geological Surveying]. Results from the Application of Aerial-Survey Methods to Integrated Geological Surveying of Gorny Altay 113

Kobets, E. V., and V. B. Komarov [Laboratory of Aerial-Survey Methods, Academy of Sciences USSR]. Application of Aerial-Survey Methods in the Exploration of Kimberlite Xenoliths 120

Viktorov, S. V., and Ye. A. Koshchov [All-Union Trust for Aerial Geological Surveying]. Results of Applying Aerial-Survey Methods in Geobotanical Investigations Carried Out Within the Scope of Geological and Petrogeological Explorations 126

Romanov, M. A. [Laboratory of Aerial Survey Methods, Academy of Sciences USSR]. Problems Related to the Geological Interpretation of the Photometric Properties of Rock (Exemplified in the Study of Sedimentary Deposits of Western Turkmenistan) 130

Tukhlov, L. M. [All-Union Trust for Aerial Geological Surveying]. Results from the Office Layout of the Topographic Base at 1:50,000 Scale for Geological Studies 136

Gur'yev, Z. I. [Laboratory of Aerial Survey Methods, Academy of Sciences USSR]. Application of Aerial Photographs to Geomorphological Studies of Steppes and Deserts 143

Kolbert, J. A. [Laboratory of Aerial Survey Methods, Academy of Sciences USSR]. Certain Aspects of Geomorphological Interpretation of Aerial Photographs of Deserts and Steppes 150

Svyatlovskiy, A. Ye. [Laboratoriya vulkanologii AN SSSR - Laboratory of Volcanology, Academy of Sciences USSR]. The Role of Aerial-Survey Methods in Studying Volcanic Regions 171

TSIKLAURI, D.S., dotsent, kand.tekhn.nauk; BYKOV, V.M., kand.tekhn.nauk,
red.; VINOGRADOVA, G.M., red.izd-va; BOROVNEV, N.K., tekhn.red.

[Hydraulic compressors] Gidrokompresory. Moskva, Gos.izd-vo
lit-ry po stroit., arkhitekt. i stroit.materialam, 1960. 70 p.
(MIRA 13:6)

(Compressors)

TSIKLAURI, David Semenovich, dots., kand. tekhn. nauk; VOLOD'KO,
I.F., kand. tekhn. nauk, nauchn. red.; SHERSHUKOVA,
M.A., red.

[Water supply for fields and pastures] Polevoe i past-
bishchnoe vodosnabzhenie. Moskva, Stroiizdat, 1964. 162 p.
(MIRA 17:5)

MOSTKOV, Mikhail Abramovich, prof. [deceased]; TSIKLAURI, D.S.,
red.; GIORGADZE, O.N., red. izd-va; BOKERIYA, E.B., tekhn.
red.

[Elements of the theory of water supply] Elementy teorii
vodosnabzheniia. Tbilisi, Izd-vo AN Gruz.SSR, 1963. 139 p.
(MIRA 16:11)

(Water supply)

TSIKLAURI, D.S., kand. tekhn. nauk (Tbilisi)

Using a jet hydrocompressor to ventilate production space. Vod.
i san. tekhn. no. 3:21-24 '64 (MIRA 18:2)

TSIKLAURI, David Semenovich, dots., kand. tekhn. nauk; VOLOD'KO,
I.F., kand. tekhn. nauk, nauchn. red.; SHERSHUKOVA, M.A.,
red.

[Water supply in fields and pastures] Polovoe i pastbishch-
noe vodosnabzhenie. Moskva, Stroiizdat, 1964. 162 p.
(MIRA 17:9)

TSIKLAURI, G. V., and USANOV, V. V.

"On the Analytical Determination of Effective Surfaces in
Channels at the Presence of Heat Transfer and Friction."

Report submitted for the Conference on Heat and Mass Transfer,
Minsk, BSSR, June 1961.

TSIKLAURI, G.V.; USANOV, V.V.

Heat transfer in a pipe at high speeds of air flow. Inzh.-fiz.
zhur. no.11:48-51 N '60. (MIRA 13;11)

1. Moskovskoye otdeleniye TSentral'nogo kotloturbinnogo instituta
im. I.I.Polzunova i Vsesoyuznyy nauchno-issledovatel'skiy institut
kislorodnogo mashinostroyeniya, Moskva.
(Pipe--Hydrodynamics) (Thermodynamics)

TSIKLAURI, G. V. and USANOV, V. V.

"The problem of the analytical determination of the effective surfaces in channels involved with heat-exchange and friction."

Report presented at the 1st All-Union Conference on Heat- and Mass-Exchange, Minsk, BSSR, 5-9 June 1961.

85433

10.4100

S/170/60/003/011/004/016
B019/B056

11.9200

AUTHORS: Tsiklauri, G. V., Usanov, V. V.

TITLE: The Problem of Heat Exchange in a Tube at High Air Velocities 21

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 11, pp. 48-51

TEXT: The one-dimensional flow of a compressible gas in a tube is measured under the assumption of a convective heat exchange with the wall. The authors succeeded in setting up a linearized differential equation, which describes the motion of the gas. The solutions were checked by means of data experimentally determined by B. S. Pezovan at the MEI, where the local heat exchange in the case of a turbulent flow was investigated. The thin-walled tubes had a diameter of 15.95 mm, and a length, which amounted to the 29.5-fold of the diameter. The temperature of the air flow was changed between 150 and 400°K, whereas the wall temperature was kept constant at 300°K. As may be seen from the comparison of the results, the relations of the hydrodynamic theory for the heat exchange

Card 1/2

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The Problem of Heat Exchange in a Tube
at High Air Velocities

S/170/60/003/011/004/016
B019/B056

within the Mach number range of from 0.5 to 3 are correct and may be used
for practical calculations. There are 1 figure and 5 Soviet references.

ASSOCIATION: Moskovskoye otdeleniye Tsentral'nogo kotloturbinnogo
instituta im. I. I. Polzunova (Moscow Branch of the Central
Steam Turbine Institute imeni I. I. Polzunov).
Vsesoyuznyy nauchno-issledovatel'skiy institut kislородnogo
mashinostroyeniya, g. Moskva (All-Union Scientific Research
Institute of Oxygen Apparatus and Machinery, Moscow)

SUBMITTED: May 16, 1960

Card 2/2

DEYCH, M.Ye.; STEPANCHUK, V.F.; SALTANOV, G.A.; TSIKLARI, G.V.

Experimental study of condensation jumps. Teplofiz. vys. temp.
2 no.5:789-796 S-O '64. (MIRA 17:11)

1. Moskovskiy energeticheskiy institut.

USANOV, V.V., inzh.; Primali uchastiye; NAURITS, L.N., inzh.; TSIKLAURI,
G.V.; SHISHOV, Ye.V.; VSEKHSVYATSKIY, V.N.; tekhnik; PONOMAREVA,
T.A.; tekhnik; SHCHERBAKOV, V.D.; tekhnik; SPESIVYKH, A.F., tekhnik

Heat exchange and resistance in an axisymmetric nozzle at
low supersonic speeds. Trudy VNIIMASH no.5:61-83 '62.
(MIRA 18:3)

L 35458-65 SWP(m)/FWT(l)/FCS(k)/SMA(d)/SMA(l) Pd-1 WK

ACCESSION NR: AP5007799

S/0281/65/000/001/0122/0128

AUTHOR: Daych, M. Ye.; Stepanchuk, V. F.; Saltanov, G. A.; Tsiklauri, G. V.

TITLE: Experimental studies of condensation discontinuities within an axially symmetric water vapor flow

SOURCE: AN SSSR, Izvestiya. Energetika i transport, no. 1, 1965, 122-128

TOPIC TAGS: condensation discontinuity, nozzle flow, supersonic vapor flow, water vapor flow, supercooled vapor flow, Laval nozzle

ABSTRACT: The study of high-velocity vapor flows in the presence of phase transitions is of great importance for the theory of steam turbines, atomic power engineering, etc. The present investigation is based on the experimental works (Izv. AN SSSR, Energetika i transport, 1964, no. 3; Teplofizika i tekhnika temperatur, 1964, no. 3; Ibid., 1964, no. 5) carried out at the Kafedra parovykh i gazovykh turbin (Department of vapor and gas turbines) of the MEI. The references describe the experimental equipment and procedures used for the subsequent experimental studies of condensation discontinuities within the flow following the cross-section of tapered nozzles and within the widened section of the Laval nozzle. Results within the range of flow of supercooled vapor show that

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L 35458-05

ACCESSION NR: AP5007799

1) condensation discontinuities appearing within the free supersonic flow and in the diverging portion of the Laval nozzle modify the structure of the flow in a substantial manner. In particular, the condensation discontinuities, which are formed in the supersonic flow, lead to the appearance of a shock wave in the subsonic portion of the nozzle.

tinuity depends on the overheating factor and the time interval needed for the vapor to expand from the upper boundary curve to the discontinuity, and 3) the maximum rate of change of the pressure of the vapor during the time of expansion to the upper boundary curve. The authors also give the empirical relationships, in art. 10, for the calculation of the pressure of the vapor during the time of expansion.

nat: 4 formulas and 7 figures.

ASSOCIATION: none

SUBMITTED: 04 Jun 64

ENCL: 00

SUB CODE: ME

NO REF SOV: 004

OTHER: 006

Card 2/2

DEYCH, M.Ye.; TSIKLURI, G.V.

Supercooling and structure of a stream of wet steam escaping
from a tapering nozzle. Teplofiz. vys. temp. 2 no.3:454-463
My-Je '64. (MIRA 17:8)

1. Moskovskiy energeticheskiy institut.

DEYCH, M.Ye., doktor tekhn.nauk, prof.; STEPANCHUK, V.F., dotsent, kand.tekhn.
nauk; TSIKLAURI, G.V., inzh.

Distribution of static pressures in the flow of wet steam. Izv. vys.
ucheb. zav.; energ. 7 no.8:111-115 Ag '64.

(MIRA 17:12)

1. Moskovskiy ordena Lenina energeticheskiy institut.

DEYCH, M.Ye. (Moskva); STEPANCHUK, V.F. (Moskva); SALTANOV, G.A. (Moskva);
TSIKLAURI, G.V. (Moskva)

Experimental study of rapid condensation changes in an axisym-
metrical accelerating flow of water vapor. Izv. AN SSSR, Energ. i
transp. no.1:122-128 Ja-F '65. (MIRA 18:4)

CA TSIKLIK

23

Impregnating pig-skin saddle leather. A. A. Pchelín and M. B. Tsúklík. *Tsentral. Nauch.-Issledovatel. Inst. Kozhevnoy Prom., Sbornik Rabot No. 9, 1924 (1936).*
The impregnation of the chrome-sulfite cellulose and retanned pig saddle leather, by forming a water-resistant albumin tannin coagulate, on the flesh side, imparts low water absorption and permeability without a detrimental effect on other properties of the leather. The experiments are described.
A. A. Buchtinglik

A.S.M. S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

SHEBES, Mikhail Romanovich; TSIKLINAM Yevgeniya Aleksandrovna;
ROZHDESTVENSKAYA, V.A., red.

[Problems in electromagnetic field theory; textbook for students of the technological faculties of the All-Union Correspondence Electrotechnical Institute of Communications] Zadachnik po teorii elektromagnitnogo polia; uchebnoe posobie dlia studentov tekhnicheskikh fakul'tetov VZEIS. Moskva, Red.-izd.otdel Vses. zaochnogo elektrotekhn. in-ta sviazi, 1963. 199 p. (MIRA 18:3)

TSIKLIS, D.A.

Phase equilibria in the acetaldehyde water methane system at high pressures [with summary in English]. Zhur. fiz. khim. 32 no. 6:1367-1371 Je '58.
(MIRA 11:8)

1. Institut azotnoy promyshlennosti, Moskva.
(Acetaldehyde)
(Methane)
(Phase rule and equilibrium)

TSIKLIS, D.S.; SHENDEREY, L.I.; KOFMAN, A.N. (Moscow)

Solubility of acetaldehyde in compressed gases. Zhur. fiz. khim.
34 no.4: 768-772 Ap '60. (MIRA 14:5)
(Acetaldehyde) (Nitrogen) (Hydrogen)

TSIKLIS, D.S.

Surface tension between two immiscible gases.

Report to be submitted for the 3rd Congress, European Federation of
Chemical Engineering
London, England 20-29 Jun 1962

1

Argon. N. S. Turocheshnikov and D. S. Tskhis.
Zhurn. 61,441, July 31, 1937. The A 1. Gase from the
tower used in the rectification of air is removed in vapor
state, rectified in a sep. tower, and purified chemically.

ASB SLA APPELLUNGAL LITERATURE CLASSIFICATION

100-100000, 100-100; 100-100000, 100-100

Moscow State Nitrogen Institute (-1)42-)

"Equilibriums of Gases - Gas and Phase Equilibrium in Binomial Systems." Zhur.

Fiz. Khim., Vol. 17, No. 3, 1943

100-100000

1ST AND 2ND CODES																										3RD AND 4TH CODES																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>CA</p> <p>Apparatus for high pressures. I. R. Krchevskii and D. S. Tikhonov. <i>J. Phys. Chem. (U.S.S.R.)</i> 17, 115-23 (1948).-- Design of app. for 10,000 kg./sq. cm. is reviewed, and construction of pressure-producing (pistons, valves, etc.) and pressure-measuring (a manganin resistance wire) devices are described. B. A.</p> <p>Moscow State Nitrogen Inst.</p> <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
SUBJECT INDEX																										AUTHOR INDEX																									
1ST AND 2ND CODES																										3RD AND 4TH CODES																									

0A

2

Gas-gas equilibrium and phase equilibria in binary systems. I. R. Krichvskii and D. S. Taiklis. *Acta Physicochim. U. R. S. S. 18*, 204-74(1943)(in English).--The existence of the equil. gas-gas at temps. above the crit. temp. of the less volatile was predicted by van der Waals, Onnes and Keesom but doubted by other authors. The equil. gas-gas was studied in the binary system $\text{NH}_3\text{-N}_2$ at temps. from 90 to 148° and pressures up to 10,000 kg./sq. cm., in the $\text{NH}_3\text{-CH}_4$ system at temps. from 45 to 100° and pressures up to 10,000 kg./sq. cm., and in the ternary system $\text{NH}_3\text{-N}_2\text{-H}_2$ at a temp. of 100° and at pressures up to 5500 kg./sq. cm. The existence of limited mutual soly. of NH_3 and N_2 at temps. higher than the crit. temp. of NH_3 was proved. A general qual. treatment of phase equilibria in binary systems is given. P. H. Rathmann.

Moscow State Nitrogen Inst.

ASR-5L4 METALLURGICAL LITERATURE CLASSIFICATION

TSIKLIS, D. S.

Extrapolation of data near the critical region. D. S.
Tsiklis. *J. Phys. Chem. (U.S.S.R.)* 18, 258-9 (1944).
Expts. on the mutual soly. of N_2 , CH_4 , and NH_3 do not
agree with the equation of Kritschewski and Hasanova
(*C.A.* 33, 6104). B. A.

CA

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2ND AND 4TH ORDERS

2

Investigations under high pressures. D. S. Tsiklis. *Uspekhi Khim.* 14, 478-500(1945).—Review with 135 references, by topics: phase equilibria, soly. of gases in liquids, soly. of liquids in compressed gases, soly. of gases in gases, soly. of solids in liquids, soly. of solids in gases and of gases in solids, pressure-vol.-temp. relation of gases and liquids, compressibility of solids, fusion and polymorphic transitions, dielec. const., surface tension, chem. reactions, oxidation of methane, polymerization. N. Thon

AD-51A METALLURGICAL LITERATURE CLASSIFICATION

AD-51A METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND COLUMNS										PROCESSING AND PROPERTIES INDEX										3RD AND 4TH COLUMNS									
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<p>Calibration of the manganin pressure gage. D. S. Tuckler. <i>J. Tech. Phys. (U.S.S.R.)</i> 13, 940-2(1945). -- Hefligman's method of calibration of the manometer based on the elec. resistance of manganin wire, with the aid of freezing Hg at 0° under pressure, has been modified insofar as the reading of the displacement of the piston has been replaced by the simpler and more accurate reading of the amt. of a liquid (benzine) which can be contained in the pressure vessel over the frozen Hg. The benzine is added by portions and it is necessary to wait 5-10 min. after each addn. to let the liquid attain the temp. of the thermostat. The app. uses 400 g. Hg; the amt. of benzine corresponding to the solidification of all the Hg can be estd. from the vol. change of Hg on freezing, 5.3%. Assuming the freezing pressure of Hg at 0° to be = 7640 kg./sq. cm. the measurements give for the relative change of elec. resistance of manganin as a function of pressure, $(1/R_0)(\Delta R/\Delta p) = 2.540 \times 10^{-6}$ sq. cm./kg., N. Thon</p>																													
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CA										/									
<p>A pipet for the determination of ethylene. D. S. Tishler. <i>Zavodskaya Lab.</i> 12, 612-3(1944). The upper part of the pipet, an ordinary bubble chamber, is connected to an auxiliary pressure bulb and filled with 30% KOH in NaOH. The lower part, sep'd. from the upper part by an inclined diaphragm, is filled with glass tubes; in it C_2H_4 is absorbed by H₂O. A system of capillary tubes permits gas to be drawn from the buret of the gas analyzer into the upper part of the pipet (displacing the alkali soln. into the pressure bulb); adjustment of a 3-way stopcock closes the connection to the buret and opens a passage from the upper to the lower part of the pipet, so the sample can be led into the bromine soln. The absorption of C_2H_4 is effected by manipulating the pressure bulb. After the absorption, the level of the H₂O is adjusted, the gas is forced into the alkali-filled pipet to absorb the Br vapors remaining in the stopcock, and then it is returned from the pipet into the buret, and its vol. measured.</p> <p style="text-align: right;">W. R. Henn</p>																			
<p>ASS-ILA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>FROM 17111110</p> <p>140089 *4</p> <p>100000 1111 1111 1111</p> <p>11111111</p> <p>11111111 1111 1111 1111</p>																			

PROCESSED AND PREPARED BY

2

Heterogeneous equilibria in binary systems. 1) S
Falkin. *Izv. Akad. Nauk SSSR Ser. Khim.*, 1971, No. 1, p. 101.
Mixture of CO₂ with N₂, CH₄, or H₂ at 0 °C do not show th
effect of partial solv. of gases (cf. Krichevskii and Ild
shakov, C.I., 35, A6789) up to 7000 kg sq. cm. In
between 1000 and 7000 kg. sq. cm. a solid and a gas phase
co-exist. The solid phase contains 1.5 and 18.6 mol % of
N₂ at 1000 and 7000 kg. sq. cm. At the same pressures it
contains 0.5 and 20.0 mol % of CH₄ or 1.4 and 7.0 mol %
of H₂. The equation of Krichevskii and Kazarnovskii
(C.I., 40, 7007) fits these data. For its application the
fugacities of CH₄ and H₂ are calcd. J. J. Bikerman

AISI-514 METALLURGICAL LITERATURE CLASSIFICATION

E2

REFLECT ONE ONLY SIDE

25

Limited Inter-Solubility of Gases Under High Pressures. System Sulfur Dioxide-Nitrogen. (In Russian.)
D. B. Taiklis. *Journal of Physical Chemistry* (U.S. S.R.), v. 21, no. 3, 1947, p. 349-354.
 Binary mixtures of SO_2 with N, were investigated in the range 25° to 160°C , and at pressures up to 10,000 kg./sq. cm. Results are tabulated and charted. 11 ref.

ASH-61A METALLURGICAL LITERATURE CLASSIFICATION

GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

FUNCTIONS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CHARACTERISTICS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

27

Heterogeneous Equilibria in Binary Systems: Systems: Ethylene-Carbon Dioxide, Ethylene-Nitrogen. (In Russian.) D. S. Tsiklis. *Journal of Physical Chemistry* (U.S.S.R.), v. 21, no. 3, 1947, p. 355-359.

The above systems were investigated at 0°C., and at pressures up to 7000 kg./sq. cm. Results are tabulated and charted.

58/49T98

TSIKLIS, D. S.

USSR/Physics
High Pressures
Gases

Jun 49

"Device for the High-Pressure Compressing of Gas," D. S. Tsklis, N. E. Khazanova, State Inst of Nitrogen Ind, 2 pp

"Zavod Lab" Vol XV, No 6

Industry frequently requires large amounts of very pure gas compressed under high pressures. Describes a simple apparatus developed to fill this need. It is capable of compressing as up to 720 atm. Advantages are many, including: (1) ability to work with small amounts of gas; 58/49T98

USSR/Physics (Contd)

Jun 49

(2) no contact between lubrication oil and gas, thus insuring as purity; and (3) pressure which is obtainable is limited only by size and strength of apparatus.

58/49T98

TSIKLIS, D.S.; KRICHEVSKIY, I.R., professor, redaktor.

[Technology of physical and chemical high pressure research]
Tekhnika fiziko-khimicheskikh issledovani pri vysokikh davleniyakh.
Pod red. I.R.Krichевского. Moskva, Gos.nauchno-tekhn.izd-vo khim.
lit-ry, 1951. 216 p.
(MLRA 7:3)
(Pressure (Physics))

TSIKLIS, D. S.

178T10

USSR/Chemistry - Liquefied Gases

1 Jan 51

"Limited Mutual Solubility of Gases at High Pressures.
System Ammonia-Methane-Nitrogen," D. S. Tsiklis

"Dok Ak Nauk SSSR" Vol LXXVI, No 1, pp 97-99

Ternary mixtures of ammonia-methane-nitrogen separate
into 2 phases, i.e., show limited solubility at definite
temp and pressures just as other mixt (ammonia-
nitrogen, ammonia-methane, sulfur dioxide-nitrogen,
ammonia-nitrogen-hydrogen) contain polar component do.
Phenomenon of barotropism [lower sp gr of phase richer
in ammonia] is also observed here.

178T10

TSIKLIS, D. S.

184T17

USSR/Chemistry - Compressed Gases 21 Jun 51

"Method of Determining Compressibility of Gases at High Pressures," I. P. Krichevskiy, D. S. Tsklis, State Sci. Res. and Plan. Inst. of Nitrogen Ind. (1951),
 Dokl. Ak. Nauk SSSR" Vol LXXVIII, No 6, pp 1169-1172

In detg compressibility of gases in steel vessels by applying elevated pressure on one side, it is difficult to est elastic and plastic deformation of vessel. Method described eliminates this fault by using newly designed app

184T17

USSR/Chemistry - Compressed Gases 21 Jun 51
 (Contd)

which has gasket instead of ordinary seal for the piston. Compression of gas proceeds under displacement of mercury into piezometer by liquid transmitting pressure. Tested method by compressing N_2 at 500 to 3,000-6,000 at.

2 184T17

TSIKLIS, D. S.

USSR/Chemistry - Nitrogen

11 Jul 51

"Compressibility of Nitrogen at Pressures up to
10,000 Atmospheres," D. S. Tsiklis, State Res and
Project Inst of Nitrogen Ind

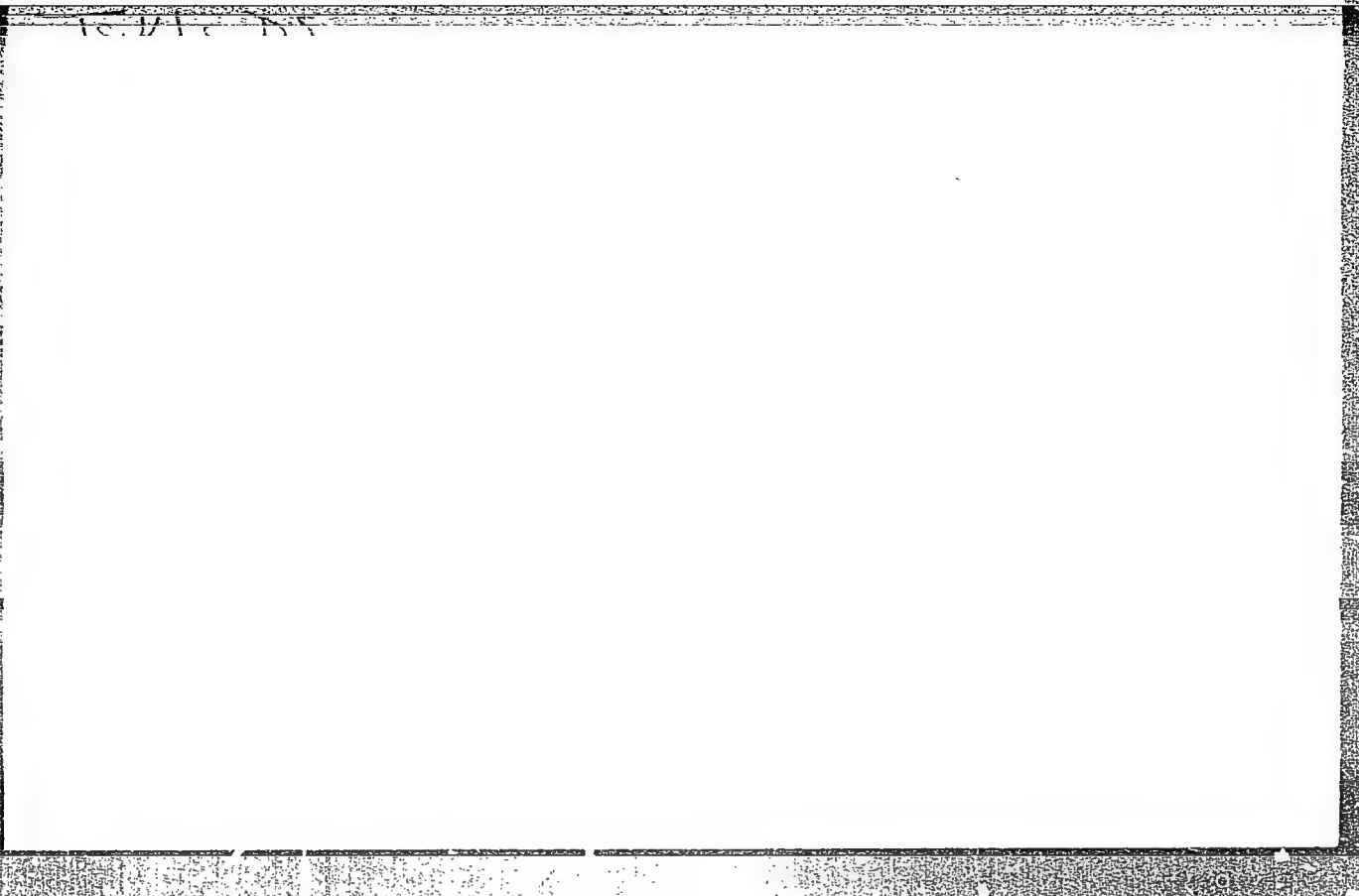
"Dok Ak Nauk SSSR" Vol LXXIX, No 2, pp 289, 290

Gives the compressibility of nitrogen at 500, 1000,
and 1500 for pressures up to 10,000 atm measured
at intervals of 500 atm. Compares the exptl values
with values calcd from Tait's eq.

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"APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7



APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7"

TSIKLIS, D. S.

Pressure (Physics)

"Technique of physical-chemical investigations at high pressures." Reviewed by
M. S. Gonikberg. Usp.khim., 21, No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED

TSIKLIS, D.S.

PA 234T12

USSR/Chemistry - Liquid Gases, Ammonia 1 Apr 52

"Solubility of Liquid Ammonia in Compressed Nitrogen at Pressures Up to 4,000 Atmospheres," D. S. Tisklis, State Sci Res and Planning Inst of Nitrogen Ind

"Dok Ak Nauk SSSR" Vol 83, No 4, pp 585-588

Sol diagrams for liquid ammonia in nitrogen and nitrogen in liquid ammonia were constructed. Measurements were made at 75 and 800 and at pressures of 0 to 4,000 atm. At 750 liquid

234T12

ammonia has a min soly in nitrogen at 500 atm. The soly increases with a max at 1,000 atm. At 800 the soly is greater with a min at 600 atm. At 1,100 atm the soly is crit, increasing very much at a slight increase in pressure. When nitrogen is dissolved in liquid ammonia at 750, its max soly lies between 1,000 and 1,300 atm.

234T12

TSIKLIS, D. S.

PA 245T5

USSR/Chemistry - Gaseous Solutions 11 Oct 52

"The Limited Mutual Solubility of Gases at High Pressures in the Ammonia-Nitrogen System," D. S. Tsiklis

"Dok Ak Nauk SSSR" Vol 86, No 5, pp 993-995

Refers to previous research on the ammonia-nitrogen system, in which the course of the critical curve in that system was followed up to 1480 and to a pressure higher than 9,000 kg/sq. cm. He attempted to increase the pressure span in order to examine the furthestmost course of the critical curve. For this purpose, author constructed an apparatus with which experiments could be conducted under pressures reaching 20,000 kg/sq. cm. In actual experiments with this apparatus, reached a pressure of 18,000 kg/sq. cm. Beyond a pressure of 20,000 kg/sq. cm, the author points out, other methods of constructing an apparatus would have to be applied. With the new apparatus, investigated the ammonia-nitrogen system, at temperatures of 1480 to 1750, and at pressures up to 16,700 kg/sq. cm. These investigations showed that the critical curve, in the investigated interval of temperatures and pressures, heads toward still higher temperatures and pressures. Presented by Acad S. I. Vol'fkovich. 7 Aug 52.

(3)

245T5

USSR/Chemistry - Helium

21 Oct 52

"The Limit of Intersolubility of Gases at High Pressures in the Helium-Ammonia and Helium-Carbon Dioxide Systems," D. S. Tsiklis, State Sci Res and Planning Inst of Nitrogen Ind

"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1159-1161

He gas - NH_3 gas equil starts at the crit point of ammonia (115 kg/sq cm at 132.90°). The crit pressure of the helium-ammonia system increases with temp very slowly in comparison with ammonia-nitrogen. The helium-carbon dioxide system is similar to the above in

234T36

that the range of gas-gas equil for this system also lies above the crit point of the less volatile component (CO_2). The crit pressure, however, increases rapidly with temp. Presented by Acad S. I. Vol'fkovich 7 Aug 52.

234T36

TSIKLIS, D. S.

TSIKLIS, D. S.

Journal of Applied Chemistry
June 1954
Industrial Inorganic Chemistry

2
①
/Formation of ammonia in adiabatic compression of nitrogen-hydrogen mixtures. D. S. Tsklis (*Dokl. Akad. Nauk. SSSR*, 1953, 91, 327-329).—Rapid compression of a mixture of N_2 + $3H_2$ to 3000–10,000 atm. (2000–4000 K.) yields 3–20% of the theoretical amount of NH_3 , predicted by extrapolation from published figures for equilibrium constants at lower temp.; the yield is strongly affected by the condition of the surface. R. C. MURRAY.

11-10-54

TSIKLIS, D. S.

B. T. R.
Vol. 3 No. 3
Mar. 1954
Chemistry-Physical

3072* Oxidation of Methane Under Conditions of Adiabatic Compression. (Russian.) M. S. Fomai and D. S. Tsihls. *Doklady Akademii Nauk SSSR*, v. 101, no. 3, July 21, 1953, p. 507-508.
Data show that even under atmospheric pressure and temperatures, disintegration of carbon dioxide cannot proceed. None of the tests gave evidence of elementary carbon formation. Graph, table, 8 ref.

Isiklis, D.S.

USSR

V Compressibility of ammonia at pressures up to 10,000 atmospheres. D. S. Tsiklis. *Doklady Akad. Nauk S.S.S.R.* 91, 589-90 (1953); *cf. C.A.* 47, 34. —By the method described earlier, the molar vol. of NH_3 was measured at pressures from 1,000 to 10,000 atm. and at temp. 50, 100, 62 and 160°. The exptl. values were compared with values calcd. from the formula $V_P = V_0 \{1 - C \log[(B + P)/(B + P_0)]\}$ where V_0 is the zero reading for the vol., C and B are const. C is independent of pressure, P , and temp. and is equal to 0.3084. B is temp. dependent. $P_0 = 1000$ atm. is the zero reading for the pressure. The greatest deviation between calcd. and exptl. values is 0.6%.

J. Rovtar Leach

TSIKLIS, D. S.

USSR/Chemistry - Helium

21 Aug 53

"The Limited Mutual Solubility of Gases in the System Helium - Ethylene at High Pressures," D. S. Tsiklis, Sci-Res and Project Inst of the Nitrogen Industry

DAN SSSR, Vol 91, No 6, pp 1361-1363

Observed appearance of a meniscus in a mixt of 53% C_2H_4 + 47% He at various temps and pressures (16-150°, 225-10000 kg/cm²) indicating limited soly and the presence of distinct phases. Presented by Acad S. I. Vol'fkovich 30 May 53.

269T14

Tsiklis, D.S.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria,
Physical-Chemical Analysis, Phase Transitions.

B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3809.

Author : D.S. Tsiklis.

Inst : State Scientific Research and Planning Institute of Nitrogen
Industry.

Title : Solubility of Liquid Ammonia in Compressed Nitrogen Under
Pressures up to 4000 Atmospheres.

Orig Pub: Tr. Gos. n.-i. i proyekt. in-ta azotn. prom-sti, 1954, vyp. 3,
12-17.

Abstract: The solubility of liquid ammonia (I) in nitrogen (II) compressed
to 4000 abs. atm. at 75 and 80°, as well as of II in I at pres-
sures from 1600 to 2600 abs. atm. was studied. The point of the
maximum on the solubility curve of I in II converts into a cusp
approaching the temperature of the double homog. point (at
which the critical points of gas-gas and liquid-gas coincide;

Card : 1/2

-45-

TSIKLIS, Daniil Semenovich

(State Scientific Research and Planning Inst of Nitrogen Industry, of the Min of Chemical Industry USSR), Academic degree of Doctor of Chemical Sciences, based on his defense, 13 June 1955, in the Council of Labor Red Banner Scientific research physico-chemical Inst imeni Karpov, of his dissertation entitled: "Equilibrium between phases in systems and gas phases under very high pressure."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 24, 26 Nov 55, Byulleten' MVO SSSR, No. 20, Oct 57, Moscow, pp 22-24, Uncl. JPRS/NY-471

"APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7

APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7"

Tsiklis, D. S.

USSR/ Chemistry - Physical chemistry

Card: 1/1 Pub. 22 - 34/51

Authors : Tsiklis, D. S.

Title : ~~Limited reciprocal solubility of gases in a helium-propane system~~
at high pressures

Periodical : Dok. AN SSSR 101/1, 129-130, Mar. 1, 1955

Abstract : Brief thesis is presented on the limited reciprocal solubility phenomena of gases in a system consisting of two nonpolar gases helium - propane -. The data regarding the limited solubility of the gases were gathered at temperatures of 105, 110, 120, 130 and 150° and pressures ranging up to 5000 kg/cm². Four references: 3 USSR and 1 Dutch (1907-1953). Graphs.

Institution : State Scientific Research and Planning Institute of Nitrogen Industry

Presented by : Academician S. I. Vol'fkovich, September 11, 1954

Carbonic anhydride, carbonate in ammoniacal copper car-
bonate solution. A. N. Adamov. Khim
1954, 154, 400. In copper ammonium
carbonate solns of varying concn. was studied in a rocking
autoclave at 50 and 150 kg/cm² total pressure at 20.

for
MIT

7511415, 110.

Category: USSR / Physical Chemistry.
Thermodynamics. Thermochemistry. Equilibrium Physico-
chemical analysis. Phase transitions.

B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29863.

Author : Tsiklis D. S.

Inst : not given

Title : Calculation of Volatility of Some Gases.

Orig Pub: Zh. fiz. khimii, 1956, 30, No 5, 1182-1183

Abstract: For the calculation of the volatility of gases under high pressure an equation is proposed which has been derived by means of a general thermodynamic correlation, on the basis of Tait equation. Verification of the equation using data on compressibility of nitrogen at 6000 and 10000 atmospheres resulted in a deviation from the results of the usual calculation procedure (according to $\int V dp$) of less than 2%.

Card : 1/1

-7-

Methods for studying reactions with gaseous oxygen at
pressures up to 10 atmospheres

1 7

solts formed a straight line on the log P - $1/T$ coordinates.
 The partial pressure of H_2O was affected little by the compn.
 of the soln. The heats of vaporization of NH_3 , H_2O , and
 CO_2 varied with the soln. concn.: $\Delta H_{NH_3} = 8300-13,800$;
 $\Delta H_{H_2O} = 9900-11,000$, and $\Delta H_{CO_2} = 10,000-14,600$ cal./mol.
 W. M. Sturtevant

PEREVERTKIN, S.M.; KHRAPOVITSKIY, Yu.S., kand.tekhn.nauk; TSIKLIS, D.S.,
doktor khim.nauk

Compressibility of some liquids at high pressures. Trudy GIAP
no.7:26-32 '57. (MIRA 12:9)
(Liquids) (Compressibility)

TSIKLIS, D.S., doktor khim. nauk; KOFMAN, A.N.

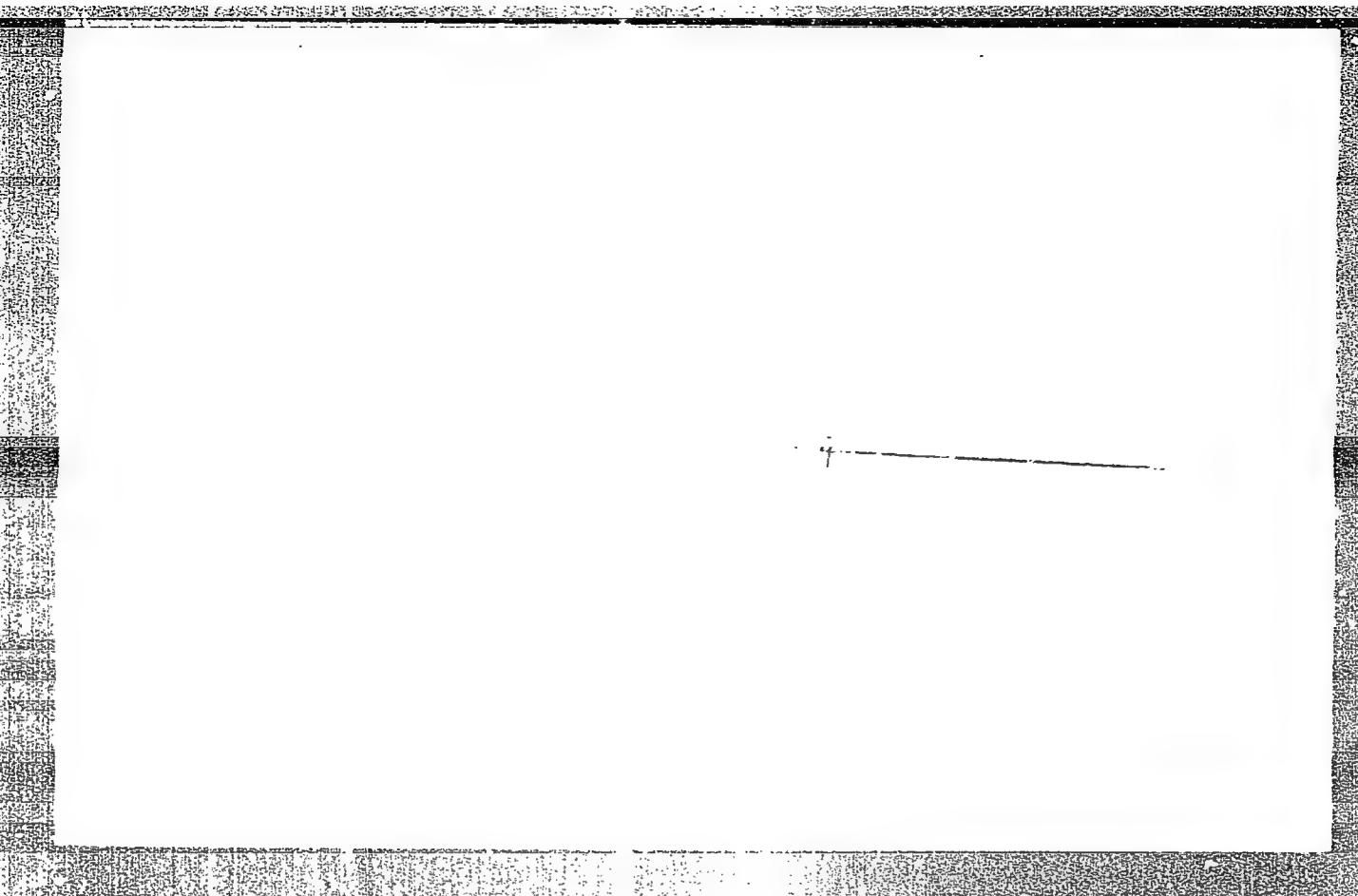
Partial pressures of ammonia, water, and carbon dioxide over
copper-ammonia solutions. Trudy GIAP no.8:21-30 '57.

(MIRA 12:9)

(Vapor pressure)

"APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7



APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001757030001-7"

Tsiklis, D. S.

AUTHORS: Tsiklis, D. S., Shvarts, Ya. D.

76-10-19/34

TITLE: Gas-Liquid Equilibrium in the System Acetaldehyde-Methane Under High Pressures (Ravnovesiye zhidkost' - gaz v sisteme atsetal'degid - metan pri vysokikh davleniyakh).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 10, pp. 2302-2305 (USSR)

ABSTRACT: Referring to the paper of one of the authors (Tsiklis) in Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, p. 100, the solubility of methane in acetaldehyde and of the acetaldehyde in methane at a pressure of 100 at and temperatures of from 0 to 40° C is determined here. The solubility of the methane in acetaldehyde was determined at 1,20 and 40° C and pressures up to 90 at. This can be expressed by the equation of I. R. Krichevskiy, and N. Ye. Khozanova, for solutions of polar liquids in non-polar gases. The solubility of the acetaldehyde in compressed methane was determined at 1,20 and 40° C and pressures up to 110 at. The equation of Krichevskiy-Khazanova gives the data for the solubility of the

CARD 1/2

Gas-Liquid Equilibrium in the System Acetaldehyde-Methane 76-10-19/34
Under High Pressures

acetaldehyde in compressed methane satisfactorily.
The equation see "Acta Physicochem." 15, 327, 1941.
There are 2 figures, 3 tables, 7 Slavic references.

ASSOCIATION: Institute for Nitrogen Industry, Moscow (Institut
azotnoy promyshlennosti, Moskva).

SUBMITTED: July 24, 1956

AVAILABLE: Library of Congress

CARD 2/2

PHASE I BOOK EXPLOITATION

828

Tsiklis, Daniil Semenovich

Tekhnika fiziko-khimicheskikh issledovaniy pri vysokikh davleniyakh (Technology of Physical and Chemical High Pressure Research) 2nd ed., rev. and enl. Moscow, Goskhimizdat, 1958. 301 p. 4,000 copies printed.

Ed.: Levantovskaya, I.I.; Tech. Ed.: Lyr'ye, M.S.

PURPOSE: The book is intended for engineers and scientists working in the field of physicochemical research at high pressures.

COVERAGE: This is a manual on research techniques at high pressures. It describes problems of materials selection, construction of apparatus and experimental procedure. Methods are also discussed for producing and measuring high and ultrahigh pressures, for establishing high temperatures and high pressures simultaneously, and for mixing operations under pressure. The book presents methods for investigating phase equilibrium, compressibility of gases and liquids under pressure, measuring surface tension on the liquid - gas boundary and wetting of solids in the presence of compressed gases. Optical instruments are described for visual observations, etc. References appear at the end of each chapter.

Card 1/9

Technology of Physical and Chemical (Cont.) 828

There are 231 references of which 59 are Soviet, 138 English, 28 German, 5 French and 1 Italian.

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TSIKLIS, D.S.; MUSHKINA, Ye.V.; SHENDEREV, L.I.

Phase equilibriums in the ethylene water system at high
temperatures and pressures [with summary in English]. Inzh.-fiz.
zhur. 1 no.8:3-7 Ag '58. (MIRA 11:8)

1.Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
azotnoy promyshlennosti, Moskva.
(Phase rule and equilibrium)

5(4), 5(1)

AUTHOR:

Tsiklis, D. S.

SOV/64-58-7-4/18

TITLE:

The Solubility of Lubricating Oil in Compressed Ethylene
(Rastvorimost' smazochного masla v szhatom etilene)

PERIODICAL:

Khimicheskaya promyshlennost', 1958, Nr 7, pp 404 - 406 (USSR)

ABSTRACT:

A. N. Kofman participated in the experiments carried out. It is known that compressed gases dissolve solids and liquids (Ref 1). Ethylene, for instance, dissolves at 50° and 240 atmospheres absolute pressure up to 17 mol % naphthalene (Ref 2). The solubility of lubricating oil of the type "S" in ethylene at 50° and 3700 kg/cm² was investigated. The apparatus used is described in publications (Ref 3). Instead of the piezometer of this apparatus one with an electromagnetic stirrer was used (diagram). The vapor pressure of the oil was determined according to the diagram of coke (Ref 4). A molecular weight of 352 is given. A special valve was constructed to deliver the ethylene and to take the sample (diagram). The properties of the lubricating oil investigated (type "S"; according to GOST 1707-42/49 are mentioned. It was found that in the pressure range from

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The Solubility of Lubricating Oil in Compressed
Ethylene

SOV/64-58-7-4/18

100 to 2000 kg/cm² the solubility of this oil increased and decreased again after the maximum (at 2000 kg/cm²). The molecular weight of the oil that dissolved in ethylene was 650. This demonstrates that ethylene mainly dissolves the heavy oil fraction. There are 3 figures, 1 table, and 6 references, 4 of which are Soviet.

Card 2/2

TSIKLIS, D.S.; KHODEYENVA, S.M.

Limited mutual solubility of gases at high pressures in systems
containing liquid in a supercritical state. Inzh.-fiz.zhur.
no.11:62-66 N '58. (MIRA 12:1)

1. Institut azotnoy promyshlennosti, g. Moskva.
(Systems (Chemistry)) (Solubility)

AUTHOR: Tsiklis, D.S. SOV/76-32-b-21/4b

TITLE: The Phase Equilibrium in the System Acetaldehyde-Water-Methane
High Pressures (Fazovyje ravnovesiya v sisteme atsetal'degid-
-voda - metan pri vysokikh davleniyakh)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6,
pp. 1367-1371 (USSR)

ABSTRACT: In continuation of an earlier paper the solubility of the
acetaldehyde and water in a solution containing 43,5%
acetaldehyde in compressed methane was investigated at
pressures up to 80 atmospheres absolute pressure and at
temperatures from 1 to 40°C, as well as the solubility of
methane in this solution. The apparatus used was already
described. The partial pressures as well as the total pressure
at the given temperatures were also determined. The
experimental work was carried out by A. N. Kofman, L. I.
Shenderoy and S. M. Khodeyeva. The Henry coefficient was
calculated from given data according to a mentioned formula;
from these values the solubility was calculated in order to
be able to compare these values with the experimental data.

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Acetaldehyde -
The Phase Equilibrium in the System/ Water -
-Methane at High Pressures

SOV/ 76-52-6-27/46

However, the volatility of acetaldehyde in the gaseous phase above the aqueous solution should have been known. Instead, the partial pressures were used in its place, using a correction according to the equation by Poynting. In the calculation it was assumed that the main quantity of acetaldehyde in the gaseous phase is not bound in complexes. The experimental results obtained were evaluated according to the equation by I. R. Krichevskiy and N. Ye. Khazanova (Ref 7). A good agreement with the demands was obtained. The greater deviations are explained by the fact that the formation of hydrates in the gaseous phase could not be taken into account; the accuracy is, however, sufficient, for technological calculations. Finally the author thanks Professor I. R. Krichevskiy. There are 2 figures, 5 tables, and 7 references, 5 of which are Soviet.

ASSOCIATION: Institut azotnoy promyshlennosti, Moskva (Moscow, Institute of Nitrogen Industry)

SUBMITTED: February 20, 1957
Card 2/3

The Phase Equilibrium in the System Acetaldehyde
Water-Methane at High Pressures. SOV/76-32-6-27/46

1. Acetaldehyde-methane-water systems--Analysis
2. Methane--Solubility
3. Pressure--Chemical effects
4. Chemical equilibrium

Card 3/3

AUTHORS: Krichevskiy, I. R. Tsiklis, D. S. SOV/76-32-6-33/4b

TITLE: Discussion (Diskussiya)
Answer to the Paper by V. Yu. Urbakh "Is There a Finite
Mutual Solubility of Gases?" (Otvét na stat'yu V. Yu.
Urbakha "Sushchestvuyet li ogranichennaya vzaimnaya
rastvorimost' gazov ?")

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6, pp.
1407-1409 (USSR)

ABSTRACT: It is pointed out that already Kamerlingh Onnes and Keesom
(Ref 1) laid down a theory on the equilibrium gas-gas,
besides, corresponding notes are to be found in the book by
Van der Waals-Konstamm (Ref 2). The main argument mentioned
by Urbakh was mentioned by Batelli in 1892, it was, however,
refuted as may be seen from the paper by A. G. Stoletov
(Ref 3). The assumptions by A. Eucken (Ref 4) are explained
by the theory of the phase transitions by L. D. Landau
(Ref 6), while the statements by A. Ye. Sheyndlin (Ref 5)
were again refuted by A.M. Rozen (Ref 7). In the further
considerations contrary to the ideas by Urbakh the papers
by Vogel (Ref 8), D. P. Konovalov (Ref 9) and I. R.

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Discussion. . . Answer to the Paper by V.Yu. SOV/76-32-6-33/46
Urbakh "Is There a Finite Mutual Solubility of Gases?"

Krichevskiy and N. Ye Khazanova (Ref 10) are mentioned and it is found that for reasoning his assumption Urbakh had to develop a new theory in the place of the Gibbs-Stoletov theory, as otherwise the statement of a certain role played by surface phenomena in the thermodynamics of critical phenomena is without any scientific value and of no importance, just as the second assumption concerning the possibility of a lengthening of the curve of equilibrium liquid-gas beyond the critical point was refuted in the above mentioned papers. There are 10 references, 5 of which are Soviet.

ASSOCIATION: Institut azotnoy promyshlennosti, Moskva
(Moscow, Institute of Nitrogen Industry)

SUBMITTED: November 11, 1957

1. Gases--Solubility
2. Gases--Theory
3. Gases--Phase studies
4. Gases--Thermodynamic properties

Card 2/2

AUTHORS: Tsiklis, D. S., Svetlova, G. M. (Deceased) SOV/76-32-7-6/45

TITLE: The Solubility of Gases in Cyclohexane (Rastvorimost' gazov v tsiklogeksane)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 7, pp.1476-1480 (USSR)

ABSTRACT: Since, with one exception, no data are available on the solubility of chlorine, hydrogen chloride, nitrosyl chloride, nitrogen oxide and hydrogen sulfide in cyclohexane in publications the authors in the present paper determined these values and gave their data. The measurements were carried out according to the static method by the determination of the total pressure above the solution at certain temperatures (10, 20 and 40°) and concentrations of the solution. A schematic representation of the experimental equipment is given from which may be seen that a spring with a mirror served as manometer with a light pencil being reflected to a scale. The checking system of the equipment was housed in a thermostat and the gases used had been dried by freezing before the experiments; the purification of the cyclohexane was carried out by G. A. Sorina. To avoid a possible photo-

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The Solubility of Gases in Cyclohexane

SOV/76-32-7-6/45

chemical reaction the authors used dark glass and brass filters. From the results obtained may be seen that the solubility of the gases investigated decreases with an increase of the temperature. The solubility of hydrogen chloride and nitrogen oxide is subject to the Henry law, while the solubility of nitrosyl chloride, chlorine and hydrogen sulfide does not vary linearly as the pressure, and can be expressed by the equation according to Krichevskiy-Il'inskaya. The heats of solution of the gases investigated were calculated and given in a table. The deviations of the determinations from the values obtained by interpolation are given to be 5 % in the case of nitrosyl chloride and 10-15 % for the other gases, respectively. Finally the authors thank I. R. Krichevskiy. There are 2 figures, 4 tables, and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut azotnoy promyshlennosti, Moskva (Moscow, Institute of Nitrogen Industry)

1. Gases--Solubility 2. Gases--Temperature factors 3. Gases
--Heat of solution 4. Cyclohexanes--Properties

Card 2/2 :

5(4)

SOV/76-33-9-20/37

AUTHORS:

Isiklis, D. S., Kofman, A. N., Shenderay, L. I.

TITLE:

Phase- and Volumetric Behavior of Solutions of Acetylene in Acetone

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2012-2016 (USSR)

ABSTRACT:

G. S. Cherkasova and L. F. Abramova (NIAT) took part in the experimental part of the work under review. As there are no accurate data in publications concerning the volumetric behavior of solutions of acetylene (I) in acetone (II), the present investigation was carried out following suggestions made by Yu. V. Dalago and G. F. Chepelyugin. The solubility of (I) in (II) was measured according to the statistical method by measuring the total pressure over the solution at a given temperature and known concentration of the solution; a special arrangement was used for the purpose (Fig 1). The device essentially consists of a graduated tube with tap, glass manometer (as zero instrument), mercury gauge, and portioning vessel. The working procedure is described. The solubility of (I) in (II) was measured at -40, -50, -60, -70 and -80°C at a

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Phase- and Volumetric Behavior of Solutions of Acetylene in Acetone

pressure up to 1 atm, and the volume of the solution was determined. To interpret results for the phase equilibrium, the known equation (1) (Ref 5) was applied and the values obtained are specified (Table 1). With the (I)-concentration the volume of the solution rises noticeably (Table 2). By extrapolation, the solubility of (I) in (II) was determined at -80°C even for a pressure above 1000 torr (Table 3). The solubility of (I) in (II) may be expressed by the equation of I. R. Krichevskiy - A. A. Il'inskaya. The solution heat of (I) in (II) was likewise calculated. Finally, gratitude is expressed to I. R. Krichevskiy for valuable advice. There are 3 figures, 3 tables, and 8 references, 5 of which are Soviet.

SUBMITTED: February 26, 1958

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66478

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SOV/20-129-1-24/64

AUTHORS: Gonikberg, M. G., Tsiklis, D. S., Opekunov, A. A.

TITLE: On the Problem of Reinforcement of High Pressure Containers

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1,
pp 88 - 90 (USSR)

ABSTRACT: Recently a method of replacing the tensile stresses in constructions by compressive stresses, is applied in the construction of high pressure apparatus. The fact is used as well, that the compressive strength of materials like tungsten carbide and hard steels is by 3 to 4 times larger than tensile strength. This principle for instance, is applied to that construction, which is known under the name "tetrahedral anvil" and which makes it possible already now to produce pressures of 200000 atmospheres within the apparatus at very high temperatures. In this construction 4 pistons move in a highly viscous medium (pyrophyllite) towards a common center. The triangular plane frontal areas of these pistons (with a pyrophyllite intermediate layer between them) form a tetrahedral high-pressure "container". 2 problems are solved by such a construc-

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66478

On the Problem of Reinforcement of High Pressure
Containers

SOV/20-129-1-24/64

tion: The backing of the moving piston and the production of a high-pressure container, with extremely high strains and high temperatures. These problems, however, may be solved separately, using the same principle, which underlies the tetrahedral anvil. First the construction of a high-pressure container with high strength is discussed. At the internal walls of the container a plastic layer is formed, which is fixed by an elastic layer. With increasing extension of the plastic layer, the elastic layer becomes thinner and thinner and, at a certain pressure, a break occurs. As was shown by experiments, high pressure containers break from outside. Now, a high pressure container may be assumed, which is produced of 2 layers, of an external elastic bandage and of an internal layer, which is composed of several hard wedges (compare R. V. Mil'-vitskiy (Ref 3)). The material of these wedges reacts not to extension, but to pressure and, therefore, withstand considerably higher pressure than the walls of a customary cylinder. An apparatus with a high-pressure container, which is schematically illustrated by a picture, was developed and built by the authors,

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